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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/565,972	01/26/2006	Giuseppe Carlos Sarno	038665.57313US	9474

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EXAMINER

ISSING, GREGORY C

ART UNIT	PAPER NUMBER
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3662

MAIL DATE	DELIVERY MODE
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01/12/2011

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/565,972	SARNO ET AL.	
	Examiner	Art Unit	
	Gregory C. Issing	3662	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 May 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 5/28/10 has been entered.

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1-7 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The language "outputting path length measurements from the emitter to each of said platforms that are based on said corrected times of arrival" represents new matter that is required to be cancelled. The Examiner finds no teaching of such in the specification as originally filed.

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1-7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

6. The claims are directed to an "apparatus" however there is no single apparatus disclosed in the specification nor shown in the drawings wherein the "apparatus" comprises plural airborne

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platforms having receivers as well as a determining means. The claims would appear to be directed to a “system.” It is noted, however, the system is simply defined by a plurality of the airborne platforms having respective receivers and a “determining means” which as best understood by the specification relates simply to a processor or Kalman filter capable of performing mathematical operations. However, it is unclear how an “apparatus” relates to a plurality of remote airborne platforms while additionally comprising a “determining means” which determines relative time differences of arrival of the plurality of remote platforms. Furthermore, the claims fails to clearly describe how information related to detected times of arrival at plural platforms is subsequently obtained by the “determining means”.

7. The claims fail to clearly and distinctly define the subject matter since the claims have been amended to "outputting path length measurements . . . based on corrected times of arrival." However, neither the specification nor the drawings show any outputting of any information as such. It is not clear to what the “outputting” of the claimed subject matter refers or how, if at all, it is utilized.

8. It would appear that the subject matter would be best represented by a method since (1) there does not appear to be any novel structural arrangement associated with plural airborne platform receivers detecting an emitter signal nor a processor for determining position using time of arrival data and (2) since it appears from the applicants’ claim language that the subject matter is described by the performing of operations/functions.

9. Claim 3 is indefinite since it is not clear what the applicant is claiming with respect to “one of at least three pairs of receivers”. “Three pairs of receivers” would indicate the use of six receivers which the applicant has not clearly defined in the specification nor does there appear to

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be support in the specification. It would appear that the applicant is attempting to describe the use of at least three receivers so as to define three combinations of those three receivers and thereby define three TDOA lines of position. However, this is not what is claimed.

10. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

11. Claims 1-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Minter et al (6,407,703) in view of any one or more of Choi et al [1] (Localization of Target Tracking and Navigating by Correcting Atmospheric Effects) or Choi et al [2] (Performance Comparison of Tropospheric Propagation Models: Ray Trace Analysis Results Using World-Wide Tropospheric Databases) or Mendes (Modeling the Neutral-Atmospheric Propagation Delay in Radiometric Space Techniques).

12. Minter et al teach a system and method for locating an emitter (**5**) of electromagnetic waves (1:37-41) comprising a plurality of airborne location system platforms (**6a-6c**) each of which includes means for obtaining signal measurements from the emitter including detecting a time of arrival of said electromagnetic waves (9:19-24, e.g.) and a determining means, such as a Kalman filter (9:64-10:4, e.g.), for determining a location estimate based on relative time differences of arrival. Figure 2 of Minter et al show the use of at least three airborne platforms, providing for at least three combinations of pairings of receivers and thus three TDOA measurements. While features of an apparatus may be recited either structurally or functionally, claims directed to an apparatus must be distinguished from the prior art in terms of structure rather than function. The features represented with respect to the "determining means" of claim 1 as well as the features of claims 2, 4, 5, and 7 merely represent functional operations capable of

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being performed but do not provide any structural differentiation over the prior art.

Alternatively, if the claim language is interpreted as a method claim, Minter et al do not specify the correction of time of arrival data due to discrepancies caused by atmospheric conditions.

13. It is well known in the art of propagating electromagnetic waves through the atmosphere for refraction to occur wherein the two main effects of refraction are angular bending and time delay (Choi et al [1], **Abstract** and **I. Introduction**, page 1711 and **Conclusion**, page 1712; Choi et al [2], **INTRODUCTION**, pages 1-2; Mendes, **1.1 Motivation**, page 1-2 and **3.2 Neutral-atmosphere propagation delay: a definition**, pages 72+). It is also well known in the art to correct the effects of refraction using model-based or empirical measurement procedures (Choi et al [1], **II. Localization Measure with Troposphere Delay**, pages 1711-1712; Choi et al [2], **MODELING**, page 4+; Mendes, e.g. **pure modeling, direct calibration and self-calibration**, pages 7+). As the prior art clearly recognizes the problem of electromagnetic propagation through the atmosphere, including time delay due to the refractive nature of the atmospheric layers, and the correction thereof, and since at least Minter et al teach the use of time measurements in the emitter location system, it would have been obvious to modify Minter et al by correcting the time of arrival measurements for the delay caused by the propagation of the radio wave signal through the atmosphere from an emitter to an airborne platform in view of the teachings of the secondary references. Due to the lack of support for “outputting path length measurements . . . that are based on said corrected times of arrival,” the clarity of the meaning thereof, and the functional scope thereof, any structural limitation is absent. Choi et al [2] also teach the specific ray tracing equation, see Equation (45).

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14. The applicant alleges that the claims are patentable over the prior since the operations, i.e. the functions, of “correcting detected times of electromagnetic wave arrival” and “outputting path length measurements based on the corrected electromagnetic wave arrival times” is not shown.

15. While features of an apparatus may be recited either structurally or functionally, claims directed to an apparatus must be distinguished from the prior art in terms of structure rather than function. In *re Schreiber*, 128 F.3d 1473, 1477-78, 44 USPQ2d 1429, 1431-32 (Fed. Cir. 1997) (The absence of a disclosure in a prior art reference relating to function did not defeat the Board’s finding of anticipation of claimed apparatus because the limitations at issue were found to be inherent in the prior art reference); see also *In re Swinehart*, 439 F.2d 210, 212-13, 169 USPQ 226, 228-29 (CCPA 1971); *In re Danly*, 263 F.2d 844, 847, 120 USPQ 528, 531 (CCPA 1959). “[A]pparatus claims cover what a device is, not what a device does.” *Hewlett-Packard Co. v. Bausch & Lomb Inc.*, 909 F.2d 1464, 1469, 15 USPQ2d 1525, 1528 (Fed. Cir. 1990) (emphasis in original). A claim containing a “recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus” if the prior art apparatus teaches all the structural limitations of the claim. *Ex parte Masham*, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987). An apparatus claim with process steps is an apparatus claim including functional limitations. See e.g., *R.A.C.C. Indus v. Stun-Tech Inc*, 178 F.3d 1309 (Fed Cir. 1998). In the instant case, the claimed “apparatus” simply comprises a plurality of airborne platforms having receivers and a determining means. Contrary to the applicant’s allegation, this is shown by at least *Minter et al.* Moreover, the functional steps of correcting for known path length variations due to propagation of electromagnetic waves through the atmosphere as would be experienced by sensing emitter radio waves in an airborne platform is known in the art by the secondary references. Applicant has not demonstrated how the claim language distinguishes over the combination of prior art; rather, the applicant merely alleges novelty by quoting claim language which applicant alleges is not

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present in the prior art. Furthermore, applicant has failed to show where in the specification as originally provided, the added claim language has support. In light of the fact that the combination of references are deemed to disclose the claimed apparatus as well as fact that the functional operations are capable of being performed in association with the teachings of desiring to be performed, the claimed subject matter is not patentable over the prior art.

16. The document by Blake, originally cited by the applicant is again cited for its showing of the claimed ray tracing equation.

17. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the “determining means . . . outputting path length measurements” must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will

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be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gregory C. Issing whose telephone number is (571)-272-6973. The examiner can normally be reached on Monday - Thursday 6:00 AM- 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Tarcza can be reached on (571)-272-6979. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Gregory C. Issing/
Primary Examiner
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gci